

REMARKS

In the Action, claims 1-4 are rejected. In response, claims 3 and 4 are cancelled, and new claims 5-10 are added. The pending claims in this application are claims 1, 2 and 5-10, with claim 1 being the sole independent claim.

New claims 5-10 are added to depend from independent claim 1 to recite additional features of the invention that are not disclosed or suggested in the art of record. For example, claim 5 depends from claim 1 to recite the basic additive being an alkali metal hydroxide or alkali metal alcoholate, while claim 6 recites the basic additive being an aqueous alkali metal hydroxide solution. Claim 7 recites the basic additive being an alcohol solution of sodium methylate or sodium ethylate, and claim 8 recites the basic additive being in an amount of 0.000001-0.1 to 1 based on the weight of the anisaldehyde. Claim 9 recites the amount of the Raney nickel in the method, and claim 10 recites the basic additive being an alkaline earth metal hydroxide. Support for these features are found on pages 2 and 3 of the specification. Accordingly, these claims are supported by the specification as originally filed. In view of these amendments and the following comments, reconsideration and allowance are requested.

Claims 3 and 4 are cancelled by this Amendment to obviate the rejection over JP 08238098 and U.S. Patent No. 5,800,897 to Sharma et al.

Rejection Under 35 U.S.C. § 103

The claims are rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 3,663,626 to Arrigo et al. in view of U.S. Patent No. 2,046,011 to Amend. Arrigo et al. is cited for disclosing the process for the hydrogenation of anisaldehyde to anisalcohol using a catalyst composite of platinum and an alkali metal component. Amend is cited for disclosing a Raney nickel catalyst for use in the catalytic hydrogenation of aromatic aldehydes. The Action contends that Amend discloses that a Raney nickel catalyst is the

equivalent of the platinum catalyst of Arrigo et al. so that it would be obvious to substitute the Raney nickel catalyst for the platinum catalyst of Arrigo et al.

Arrigo et al. and Amend do not disclose or suggest the claimed process of producing anisalcohol by hydrogenation of anisaldehyde in the presence of a Raney nickel catalyst, a metal hydroxide or metal alcoholate as recited in claim 1.

The present invention as claimed is directed to a process that provides a better yield and higher purity of anisalcohol compared to the processes of the cited patents. These advantages are attained by the use of a Raney nickel catalyst and a metal hydroxide or metal alcoholate as a basic additive in combination with the Raney nickel catalyst. As noted in the Action, Arrigo et al. relates to a process for the hydrogenation of anisaldehyde to anisalcohol using a composite of a platinum, alumina and alkali metal catalyst. Arrigo et al. does not disclose or suggest the use of a Raney nickel catalyst. Arrigo et al. specifically discloses a platinum alumina composite. Arrigo et al. does not disclose the use of a Raney nickel catalyst or the use of a metal hydroxide or metal alcoholate as a basic additive in combination with a Raney nickel catalyst.

The platinum catalyst of Arrigo et al. uses alumina as a carrier. The platinum component is then composited with the alumina particles by known methods. See, for example, column 1, line 69 to column 2, line 14. As disclosed in column 2, lines 15-40, the platinum alumina composite of Arrigo et al. is treated with an alkali metal component which is then dried and calcined at a temperature of 400-650°C. The resulting platinum composite catalyst of Arrigo et al. contains an alkali metal but does not contain a metal hydroxide or metal alcoholate as a basic additive in combination with a metal catalyst.

In view of the deficiencies of Arrigo et al., Arrigo et al. provides no suggestion of hydrogenation of anisaldehyde in the presence of a Raney nickel catalyst in combination with a metal hydroxide or metal alcoholate as a basic additive. Column 3, lines 49-56 of Arrigo et

al. discloses that the selectivity and the conversion of the anisaldehyde are important in producing the desired product of high purity. Column 1, lines 36-38 of Arrigo et al. specifically disclose that the desired hydrogenation is accomplished by the use of “a particular catalyst composite”. Column 1, lines 54-56, also disclose that the invention of Arrigo et al. is affected by the use of a catalyst composite of platinum and an alkali metal component. Therefore, Arrigo et al. clearly discloses that only the catalyst composite of platinum together with an alkali metal will provide the high selectivity and high conversion rate desired by Arrigo et al. Accordingly, it would not have been obvious to one of ordinary skill in the art to modify the catalyst of Arrigo et al. as suggested in the Action.

Amend is cited for disclosing a hydrogenation process to convert aromatic aldehydes to the corresponding alcohol using a nickel catalyst. The nickel catalyst is disclosed as being a nickel aluminum alloy treated with caustic soda according to the Raney method. Contrary to the suggestion in the Action, Amend provides no suggestion that a Raney nickel catalyst is the equivalent of a platinum alumina alkali metal composite. Furthermore, Amend provides no suggestion of replacing the platinum composite of Arrigo et al. with a Raney nickel catalyst. Even if one were to replace the platinum composite of Arrigo et al. with a Raney nickel catalyst, the resulting catalyst would not be the combination of a Raney nickel catalyst and a metal hydroxide or metal alcoholate as a basic additive as recited in the claims.

Arrigo et al. specifically discloses that the platinum alumina complex with an alkali metal is important in attaining the desired results according to the process of Arrigo et al. Although Arrigo et al. and Amend disclose the use of catalysts for the hydrogenation of anisaldehyde to anisalcohol, there is no suggestion that a Raney nickel catalyst is the equivalent of the platinum alumina alkali metal composite of Amend. Arrigo et al. discloses that the alkali metal is specific to the platinum alumina complex to attain the desired results. Example 1 of Amend discloses hydrogenating the anisaldehyde to anisalcohol using a nickel

chromate catalyst and not a Raney nickel catalyst or a basic additive in the form of metal hydroxide or metal alcoholate. Example 1 of Amend discloses only a 46% by weight yield of anisalcohol so that one of ordinary skill in the art would not have considered this of interest in modifying the catalyst of Arrigo et al.

In view of the above comments, Applicants submit that it would not have been obvious to replace the platinum catalyst of Arrigo et al. with the catalyst of Amend. Furthermore, even if one were to make the substitution suggested in the Action, the resulting method would not be claimed invention since the catalyst would not be a Raney nickel catalyst and a metal hydroxide or metal alcoholate as a basic additive. Accordingly, claim 1 and the claims depending therefrom are allowable over the art of record.

Claim 2 depends from claim 1 and recites the basic additive being sodium hydroxide, potassium hydroxide, sodium methylate or sodium ethylate. The art of record clearly fails to disclose or suggest the combination of the recited basic additives with a Raney nickel catalyst. Arrigo et al. discloses a platinum alumina complex that is calcined such that the resulting catalyst does not contain a metal hydroxide or metal alcoholate of claim 2.

New claims 5-10 are also allowable as depending from an allowable base claim and for reciting additional features of the invention that are not disclosed or suggested in the art of record. For example, the art of record does not disclose the basic additive being an alkali metal hydroxide or alkali metal alcoholate of claim 5, the aqueous alkali metal hydroxide solution of claim 6, the alcoholic solution of claim 7, the amounts of the basic additive of claim 8, and the Raney nickel of claim 9 or the basic additive being an alkaline earth metal hydroxide of claim 10, either alone or in combination with the method of claim 1.

In view of these amendments and the above comments, reconsideration and allowance are requested.

Respectfully submitted,



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